

**WHAT IS CLAIMED IS:**

1. An input device, comprising:

a motion detection sensor that is configured to generate three-dimensional (3D) motion data associated with 3D movement of the input device;

means for transmitting the motion data to a computer;

means for causing the computer derive a distance and direction of the movement of the input device in a two-dimensional plane based on the motion data; and

means for causing the computer to move a cursor to a corresponding position based on the distance and direction derived.

2. The device of claim 1, wherein the transmitting means wirelessly transmits the motion data.

3. The device of claim 1, further comprising means for generating control signals, in response to a user's command, for causing the computer to perform a corresponding cursor action.

4. The device of claim 3, wherein the cursor action includes one of the following: a left click operation, a right click operation, a double click operation, and a click and drag operation.

5. Computer-readable media tangibly embodying a program of instructions executable by a computer to perform a method of controlling a

cursor of the computer in response to operation of an input device, the method comprising the steps of:

receiving three-dimensional (3D) motion data associated with 3D movement of the input device;

5        deriving a distance and direction of the movement of the input device in a two-dimensional plane based on the motion data; and

      moving a cursor of the computer to a corresponding position based on the distance and direction derived.

6.        The media of claim 5, wherein the method further comprises a  
10      step of performing a corresponding cursor action in response to a control signal received from the input device, upon a user's command.

7.        The media of claim 6, wherein the cursor action includes one of the following: a left click operation, a right click operation, a double click operation, and a click and drag operation.

15        8.        A computer system, comprising:

      an input device including:

          a motion detection sensor that is configured to generate three-dimensional (3D) motion data associated with 3D movement of the input device, and

20        means for transmitting the 3D motion data; and

      a computing device including:

means for receiving the motion data from the input device,

means for deriving a distance and direction of the movement of the input device in two-dimensional plane based on the motion data, and

5 means for moving a cursor of the computing device to a corresponding position based on the distance and direction derived.

9. The system of claim 8, wherein the transmitting means wirelessly transmits the 3D motion data.

10. The system of claim 9, wherein the input device further comprises means for generating control signals, in response to a user's 10 command, for causing the computer to perform a corresponding cursor action.

11. The system of claim 10, wherein the cursor action includes one of the following: a left click operation, a right click operation, a double click operation, and a click and drag operation.

15 12. A method for controlling a cursor of a computer in response to operation of an input device, the method comprising the steps of:

receiving three-dimensional (3D) motion data associated with 3D movement of the input device from the input device;

20 deriving a distance and direction of the movement of the input device in two-dimensional plane based on the motion data; and

moving the cursor of the computer to a corresponding position based on the distance and direction derived.

13. The method of claim 12, further comprising a step of performing a corresponding cursor action in response to received control signals transmitted by the input device, upon a user's command.

14. The method of claim 13, wherein the cursor action includes one  
5 of the following: a left click operation, a right click operation, a double click operation, and a click and drag operation.

15. An input device, comprising:

a motion detection sensor that is configured to generate three-dimensional (3D) motion data on first, second and third axes, associated with  
10 3D movement of the input device;

means for transmitting the motion data to a computer;

means for causing the computer derive a distance and direction of the movement of the input device in a two-dimensional (2D) plane based on the motion data on the first and second axes;

15 means for causing the computer to determine whether the motion data on the third axis is greater than a first predetermined value; and

20 means for causing the computer to move a cursor to a corresponding position based on the distance and direction derived in the 2D plane, upon the computer determining the motion data on the third axis is greater than the first predetermined value.

16. The device of claim 15, wherein the transmitting means wirelessly transmits the motion data.

## 17. The device of claim 15, further comprising:

means for causing the computer to determine whether the motion data on the first and second axes are greater than second and third predetermined values, respectively; and

5 means for causing the computer to perform a left click operation, upon the computer determining either the motion data on the first axis are greater than the second predetermined value or the motion data on the second axis are greater than the third predetermined value.

## 18. The device of claim 17, further comprising:

10 means for causing the computer to determine whether a time interval is greater than a predetermined duration, the time interval being between the motion data on the third axis being greater than the first predetermined minimum value and the motion data on the first axis being greater than the second predetermined value or the motion data on the second axis being  
15 greater than the third predetermined value;

means for performing a drag operation upon the computer determining the time interval is greater than the predetermined duration; and

20 means for performing a right click operation upon the computer determining the time interval is not greater than the predetermined duration.

19. Computer-readable media tangibly embodying a program of instructions executable by a computer to perform a method of controlling a cursor of the computer in response to operation of an input device, the method comprising the steps of:

receiving three-dimensional (3D) motion data on first, second and third axes, associated with 3D movement of the input device;

5 deriving a distance and direction of the movement of the input device in a two-dimensional (2D) plane based on the motion data on the first and second axes;

determining whether the motion data on the third axis is greater than a first predetermined value; and

10 moving a cursor of the computer to a corresponding position based on the distance and direction derived in the 2D plane, upon determining the motion data on the third axis is greater than the first predetermined value.

20. The media of claim 19, wherein the method further comprises:

determining whether the motion data on the first and second axes are greater than second and third pre-determined values, respectively; and

15 performing a left click operation, upon determining either the motion data on the first axis are greater than the second predetermined value or the motion data on the second axis are greater than the third predetermined value.

21. The media of claim 20, further comprising:

20 determining whether a time interval is greater than a predetermined duration, the time interval being between the motion data on the third axis being greater than the first predetermined minimum value and the motion data on the first axis being greater than the second predetermined value or

the motion data on the second axis being greater than the third predetermined value;

performing a drag operation, upon determining the time interval is greater than the predetermined duration; and

5 performing a right click operation, upon determining the time interval is not greater than the predetermined duration.

22. A computer system, comprising:

an input device including:

10 a motion detection sensor that is configured to generate three-dimensional (3D) motion data on first, second and third axes, associated with 3D movement of the input device, and

means for transmitting the motion data to a computer; and

a computing device including:

15 means for deriving a distance and direction of the movement of the input device in a two-dimensional (2D) plane based on the motion data on the first and second axes,

means for determining whether the motion data on the third axis is greater than a first predetermined value, and

20 means for moving a cursor to a corresponding position based on the distance and direction derived in the 2D plane, if the motion data on the third axis are greater than the first predetermined value.

23. The system of claim 22, wherein the transmitting means wirelessly transmits the motion data.

24. The system of claim 22, wherein the computing device further comprises:

5 means for determining whether the motion data on the first and second axes are greater than second and third pre-determined values, respectively, and

10 means for performing a left click operation, if either the motion data on the first axis are greater than the second predetermined value or the motion data on the second axis are greater than the third predetermined value.

25. The system of claim 24, wherein the computing device further comprises:

15 means for determining whether a time interval is greater than a predetermined duration, the time interval being between the motion data on the third axis being greater than the first predetermined minimum value and the motion data on the first axis being greater than the second predetermined value or the motion data on the second axis being greater than the third predetermined value,

20 means for performing a drag operation, if the time interval is greater than the predetermined duration, and

means for performing a right click operation, if the time interval is not greater than the predetermined duration.

26. A method for controlling a cursor of a computer in response to operation of an input device, the method comprising the steps of:

receiving three-dimensional (3D) motion data on first, second and third axes, associated with 3D movement of the input device;

5 deriving a distance and direction of the movement of the input device in a two-dimensional (2D) plane based on the motion data on the first and second axes;

determining whether the motion data on the third axis is greater than a first predetermined value; and

10 moving a cursor of the computer to a corresponding position based on the distance and direction derived in the 2D plane, if the motion data on the third axis is greater than the first predetermined value.

27. The method of claim 26, further comprising:

15 determining whether the motion data on the first and second axes are greater than second and third pre-determined values, respectively; and

performing a left click operation, if either the motion data on the first axis are greater than the second predetermined value or the motion data on the second axis are greater than the third predetermined value.

28. The media of claim 20, further comprising:

20 determining whether a time interval is greater than a predetermined duration, the time interval being between the motion data on the third axis being greater than the first predetermined minimum value and the motion

data on the first axis being greater than the second predetermined value or the motion data on the second axis being greater than the third predetermined value;

5 performing a drag operation, if the time interval is greater than the predetermined duration; and

performing a right click operation, if the time interval is not greater than the predetermined duration.